AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method of identifying the presence or absence of at least one cytochrome P450 2D6 polymorphism in a sample, the method comprising:

(a) amplifying a cytochrome P450 2D6 gene sequence from the sample using ~~multiplex~~ amplification primers comprising SEQ ID NOs: 1-4 **in a single reaction**; and

(b) identifying the presence or absence of a cytochrome P450 2D6 polymorphism in the gene sequence amplified in ~~step~~ (a) using a primer extension reaction comprising a plurality of extension primers and a set of distinctively labeled ddNTPs.

2.-3. (Canceled)

4. (Currently amended) The method of claim 1, wherein ~~step~~ (b) comprises mobilizing ~~said at least one labeled nucleic acid~~ **a primer extension reaction product** by electrophoresis.

5. (Original) The method of claim 4, wherein said electrophoresis is capillary electrophoresis.

6. (Currently amended) The method claim 1, wherein ~~one or more of steps~~ (a) or (b) are automated.

7. (Original) The method of claim 1, wherein said distinctive labeled ddNTPs are fluorescently labeled.

8. (Currently amended) The method of claim 1, wherein said **at least one** cytochrome P450 2D6 polymorphism is selected from the group consisting of a duplication, a deletion, an inversion, an insertion, a translocation, a polymorphism resulting in aberrant RNA splicing, and a single nucleotide polymorphism.

9. (Previously presented) The method of claim 1, wherein said at least one of cytochrome P450 2D6 polymorphisms is selected from the group consisting of CYP2D6*3, CYP2D6*4, CYP2D6*5, CYP2D6*6, CYP2D6*7, CYP2D6*8, CYP2D6*10, CYP2D6*17 and CYP2D6*Nx2.

10. (Previously presented) The method of claim 9, wherein at least one of said extension primers comprises a sequence selected from the group consisting of SEQ ID NOS: 9 through 19.

11. (Original) The method of claim 1, wherein said sample is a human sample.

12. (Currently amended) The method of claim 1, wherein said **at least one** cytochrome 2D6 polymorphism is associated with a phenotype selected from the group consisting of having a reduced rate or degree of metabolism of one or more xenobiotics or endobiotics, an increased rate or degree of metabolism of one or more xenobiotics or endobiotics, a decreased or increased specificity for one or more xenobiotics or endobiotics, and combinations thereof.

13. (Previously presented) The method of claim 12, wherein said one or more xenobiotics is a toxin, a carcinogen or a narcotic, or a metabolic precursor thereof.

14. (Original) The method of claim 13, wherein said sample is a sample from a subject having a genetic predisposition to suffer from a toxin, a carcinogen, or a narcotic.

15. (Previously presented) The method of claim 12, wherein said one or more xenobiotics is a therapeutic drug or a metabolic precursor thereof.

16. (Original) The method of claim 15, wherein said therapeutic drug is a cardioactive drug or a psychoactive drug.

17. (Original) The method of claim 15, wherein said subject has a disease or disorder that may be treated by said therapeutic drug.

18. (Original) The method of claim 1, further comprising detection of wildtype P450 2D6.

19.-29. (Canceled)

30. (Currently amended) A method of selecting a therapeutic drug, or a prodrug thereof, to treat a subject suffering from a disease or disorder, said method comprising:

determining the cytochrome P450 2D6 genotype of a subject by the method of claim 1 ~~or 36~~; and

selecting said therapeutic drug or prodrug to be compatible with said genotype.

31. (Currently amended) A method of selecting a dosage of a therapeutic drug, or a prodrug thereof, to treat a subject suffering from a disease or disorder, said method comprising:

determining the cytochrome P450 2D6 genotype of a subject by the method of claim 1 ~~or 36~~; and

selecting said dosage to be compatible with said genotype.

32. (Previously presented) The method of claim 31, wherein said P450 2D6 genotype of said subject comprises a cytochrome P450 2D6 gene selected from the group consisting of CYP2D6*3, CYP2D6*4, CYP2D6*5, CYP2D6*6, CYP2D6*7, CYP2D6*8, CYP2D6*10, CYP2D6*17 and CYP2D6*Nx2.

33.-45. (Canceled)

46. (Previously presented) The method of claim 30, wherein said P450 2D6 genotype of said subject comprises a cytochrome P450 2D6 gene selected from the group consisting of CYP2D6*3, CYP2D6*4, CYP2D6*5, CYP2D6*6, CYP2D6*7, CYP2D6*8, CYP2D6*10, CYP2D6*17 and CYP2D6*Nx2.

47.-48. (Canceled)

49. (Withdrawn) The method of claim 1, wherein said cytochrome P450 2D6 gene sequence is further amplified from the sample using multiplex amplification primers comprising SEQ ID NOs: 5-8.

50. (Withdrawn) The method of claim 49, wherein said further amplification is performed in a separate amplification reaction.

51. (New) The method of claim 1, wherein the extension primers are in solution.

52. (New) The method of claim 1, wherein the extension primers differ in length.